MANIPAL UNIVERSITY

Question Paper

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MANIPAL UNIVERSITY

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER MASTER OF ENGINEERING- ME(MEDICAL SOFTWARE)
DEGREE EXAMINATION- APRIL/ MAY2017
Friday, 28, 2017
Time : 10:00 AM - 1:00 PM

Bio Medical Signal Processing [MMS 616.1]

Marks: 100 **Duration: 180 mins.**

A

Answer all the questions.

1)	With neat Diagram, explain anatomy of the brain	(10)
2)	Explain physiology of the heart	(10)
3)	With neat diagram explain ECG lead system	(10)
4)	What is data reduction technique? Explain any one Lossless data reduction algorithm.	(10)
5)	How signal compression ratio will be 2:1 in turning point algorithm, explain?	(10)
6)	Find the DFT of the sequence x(n) = [1, 1, 1, 0, 0, 1, 1, 1] using DIT-FFT algorithm.	(10)
7)	Explain DFT-FFT using Decimation in Frequency technique	(10)
8)	Realize the following system functions using Direct form-I, Direct form-II and CSOS / PSOS H(z) = [(z2 + 0.5z +1)(z + 0.6)] / [(z2 + 0.6z + 0.2)(z - 0.8)]	(10)
9)	Design an ideal FIR low pass filter with a cutoff frequency of $\pi/2$ radians, using Hamming window. Assume 25 tap coefficients	(10)
10)	Design and realize a Butterworth / Schebychev lowpass analog filter whose Passband magnitude is to be constant within 1 dB for frequencies below 0.2π rad/sec and stopband attenuation is to be greater than 15 dB for frequencies above 0.3π rad/sec.	(10)